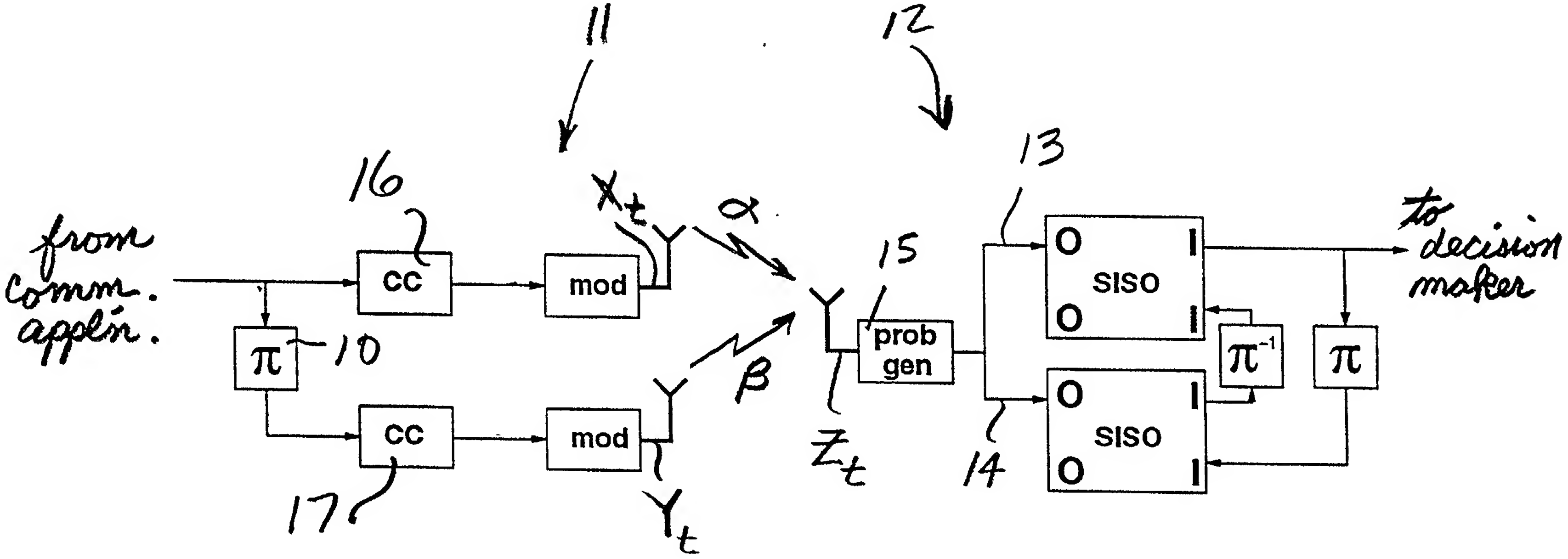


FIG. 1 PRIOR ART

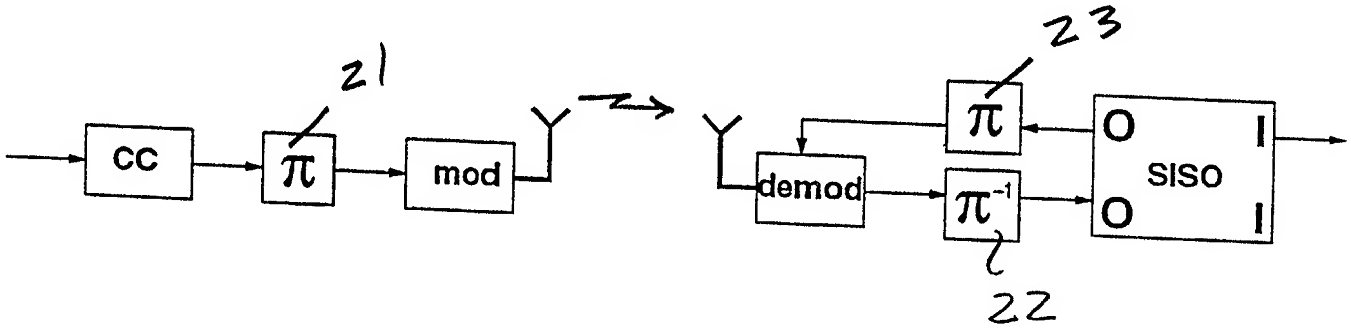


FIG. 2 PRIOR ART

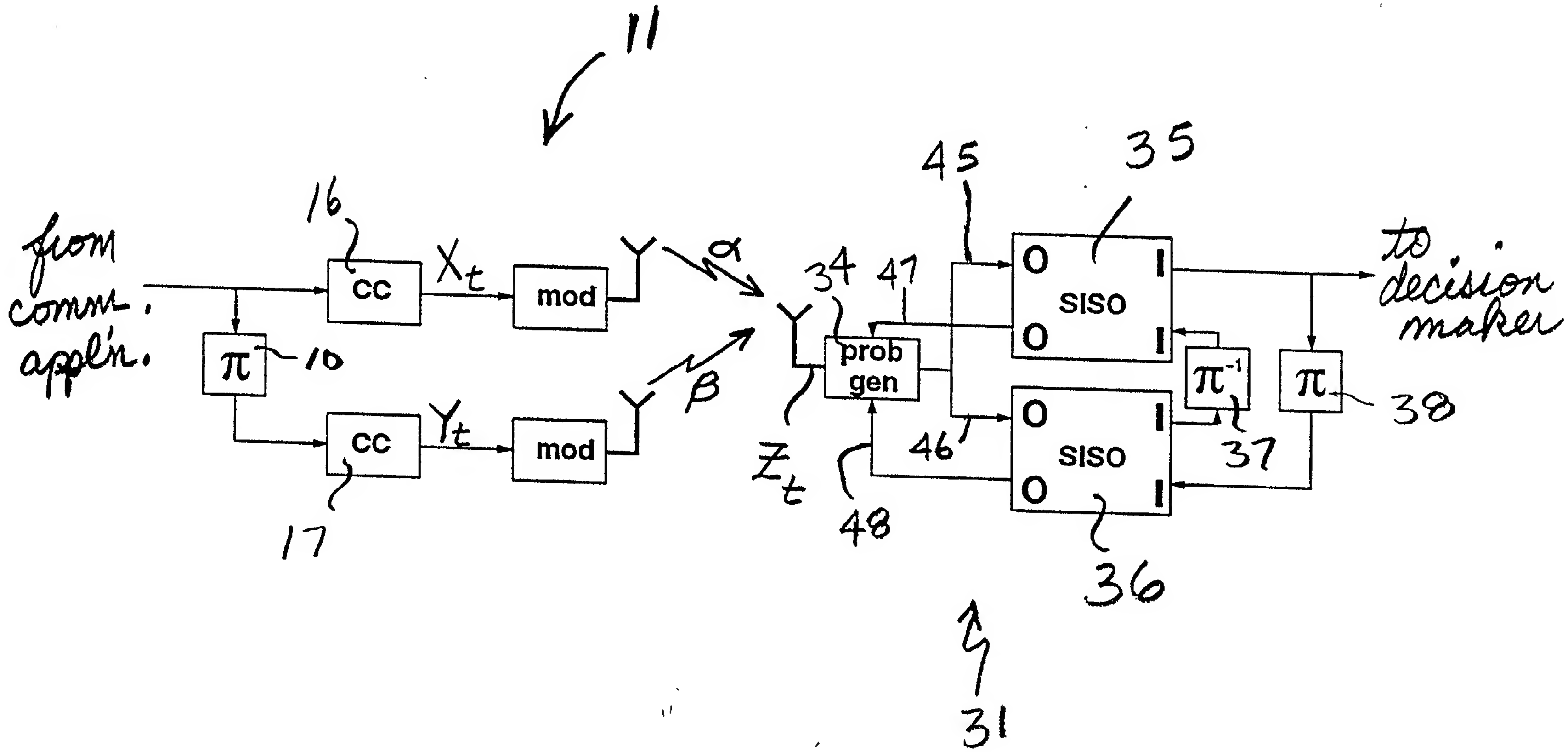

11
from comm. appl'n.
π
10
16
cc
17
cc
X_t
Y_t
mod
mod
α
β
Z_t
34
prob gen
47
48
45
46
35
36
SISO
SISO
O
O
O
O
I
I
I
I
π^{-1}
37
π
38
to decision maker
31

FIG. 3

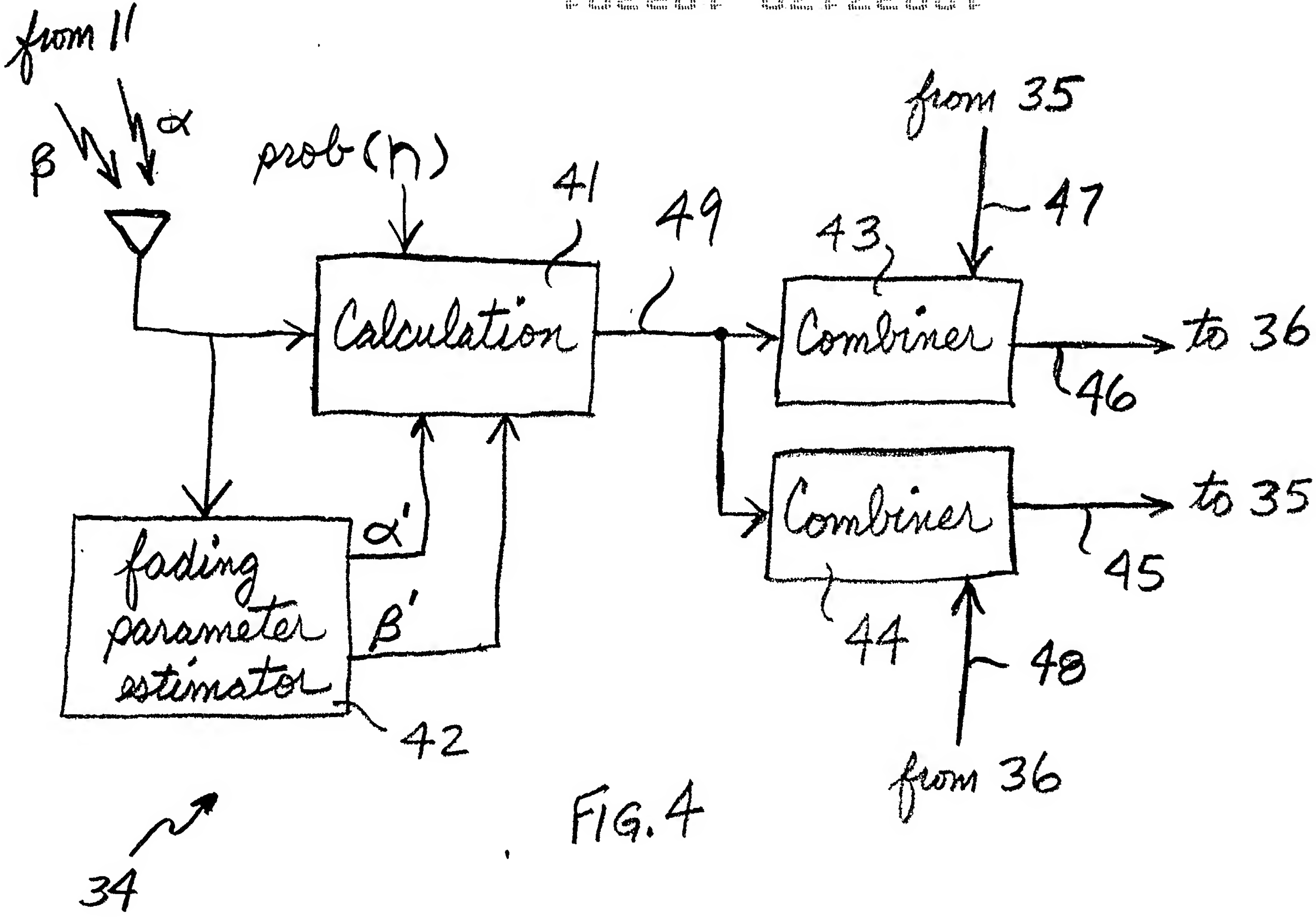
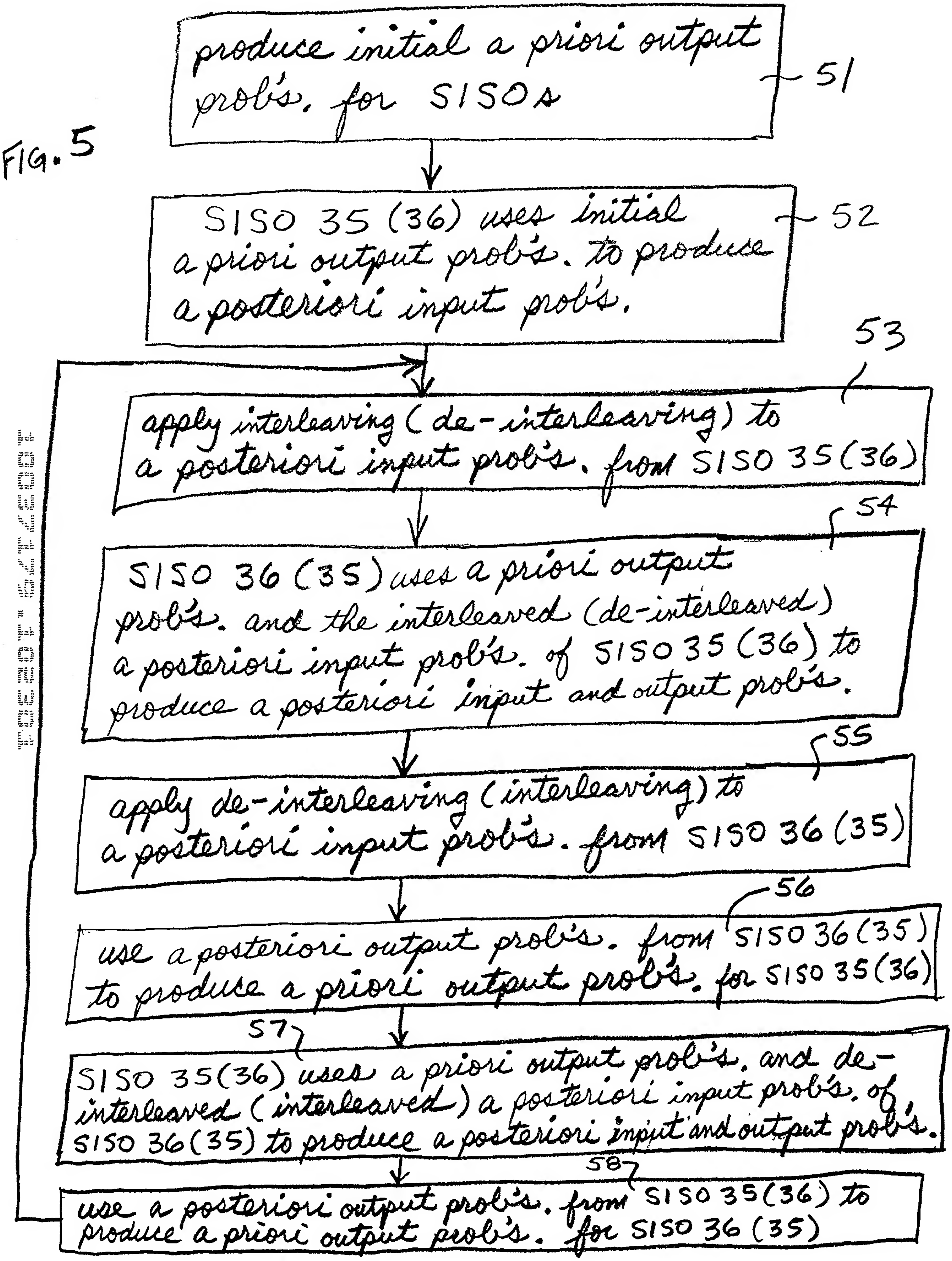

from 11
β
α
prob(n)
Calculation
41
49
43
Combiner
from 35
47
to 36
46
Combiner
to 35
45
44
48
from 36
fading parameter estimator
α'
β'
42
34

FIG. 4

FIG. 5


produce initial a priori output prob's. for SISOs
51
SISO 35 (36) uses initial a priori output prob's. to produce a posteriori input prob's.
52
53
apply interleaving (de-interleaving) to a posteriori input prob's. from SISO 35 (36)
54
SISO 36 (35) uses a priori output prob's. and the interleaved (de-interleaved) a posteriori input prob's. of SISO 35 (36) to produce a posteriori input and output prob's.
55
apply de-interleaving (interleaving) to a posteriori input prob's. from SISO 36 (35)
56
use a posteriori output prob's. from SISO 36 (35) to produce a priori output prob's. for SISO 35 (36)
57
SISO 35(36) uses a priori output prob's. and de-interleaved (interleaved) a posteriori input prob's. of SISO 36 (35) to produce a posteriori input and output prob's.
58
use a posteriori output prob's. from SISO 35 (36) to produce a priori output prob's. for SISO 36 (35)

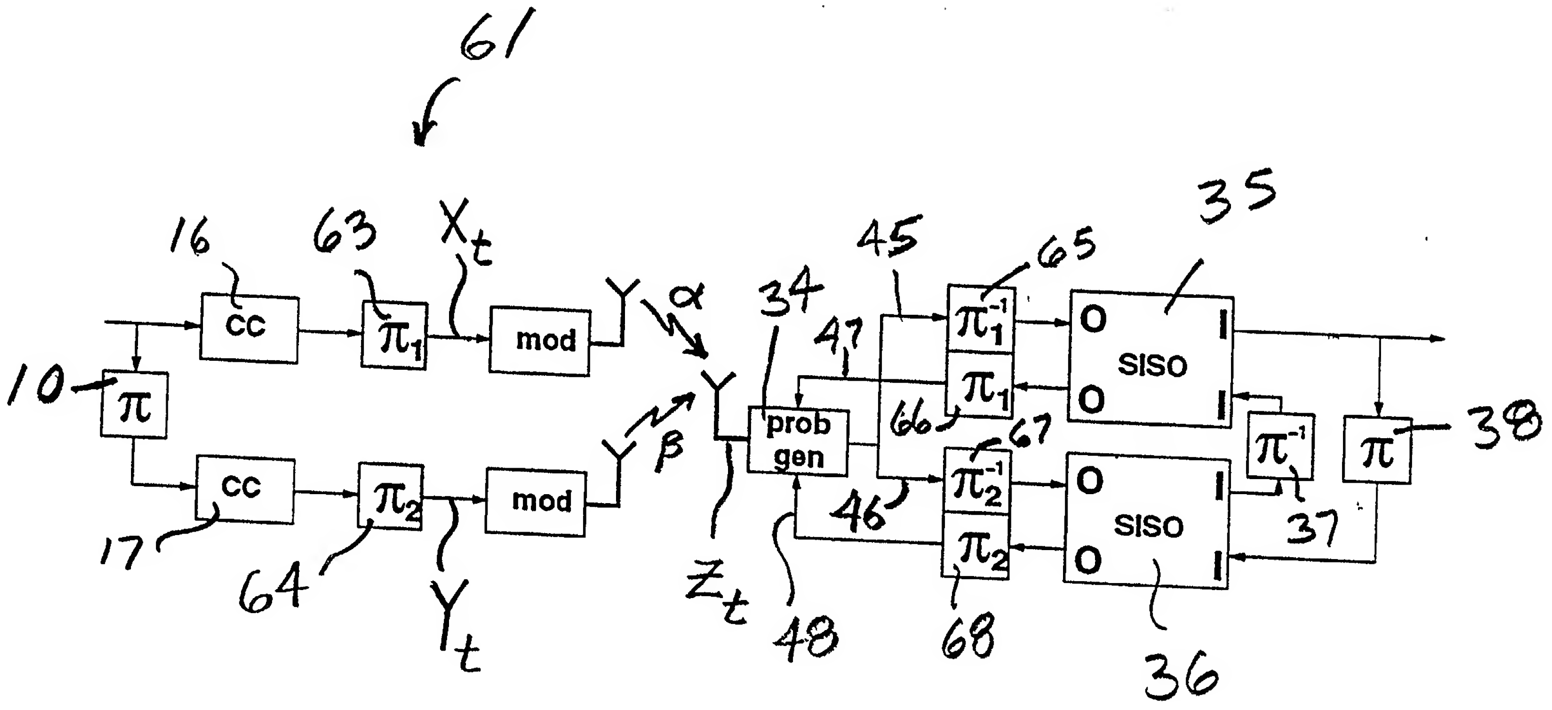

61
16
63
X_t
35
45
65
34
47
cc
π_1
mod
α
π_1^{-1}
SISO
O
I
10
π
π_1
prob gen
66
67
π^{-1}
π
38
cc
π_2
mod
β
π_2^{-1}
SISO
46
37
17
64
Y_t
Z_t
48
π_2
68
36
62

FIG. 6

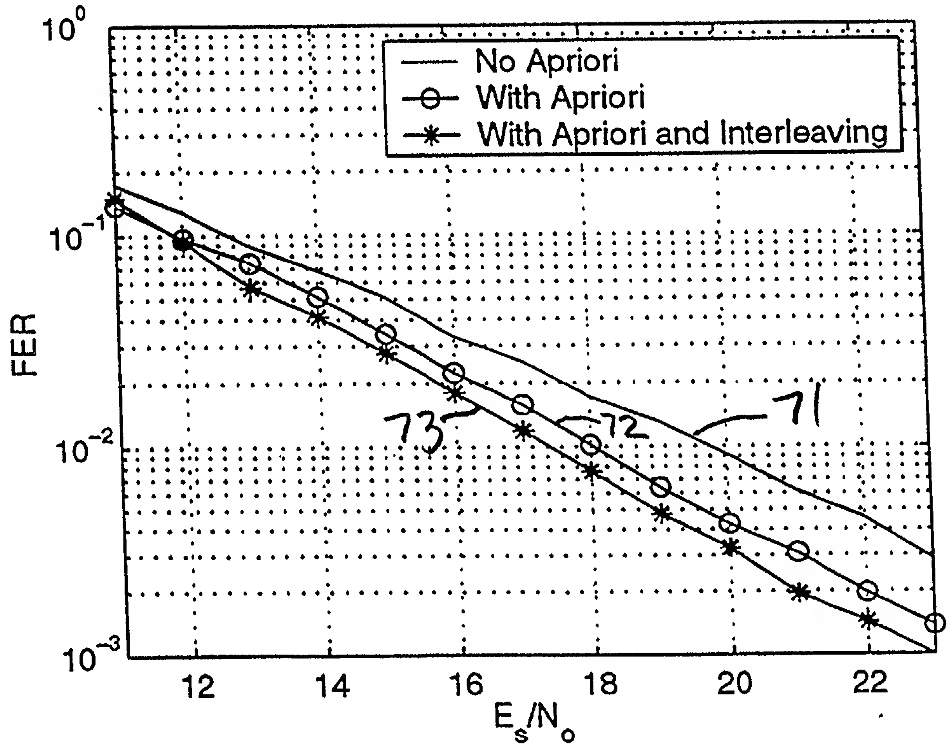

FER
10^0
10^{-1}
10^{-2}
10^{-3}
12
14
16
18
20
22
E_s/N_o
No Apriori
With Apriori
With Apriori and Interleaving
71
72
73

FIG. 7

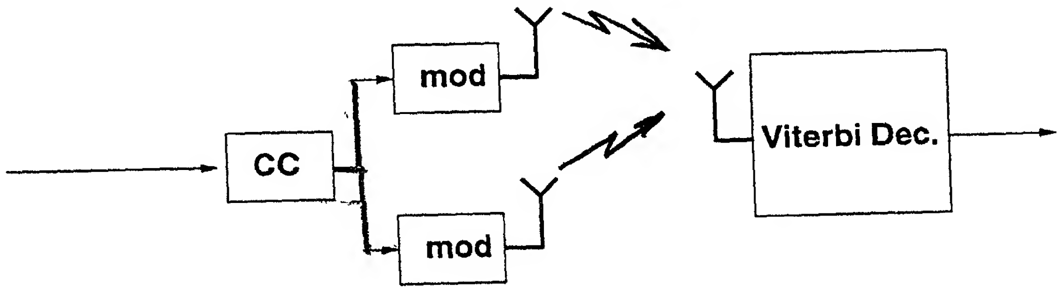


FIG. 8 PRIOR ART

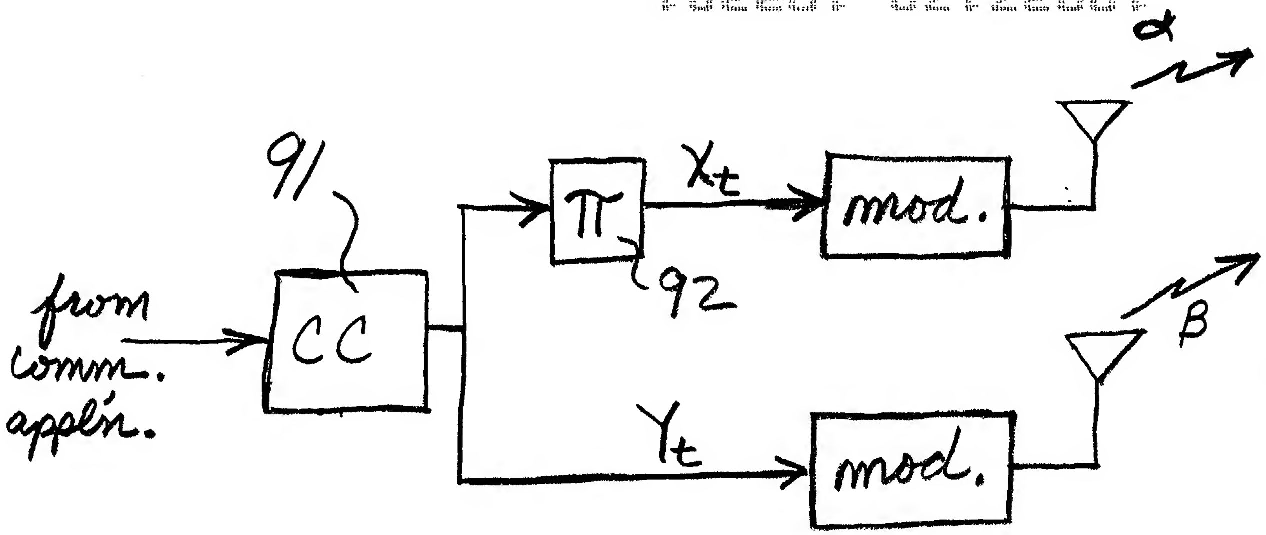

from comm. appln.
91
CC
π
92
X_t
mod.
Y_t
mod.
α
β

FIG. 9

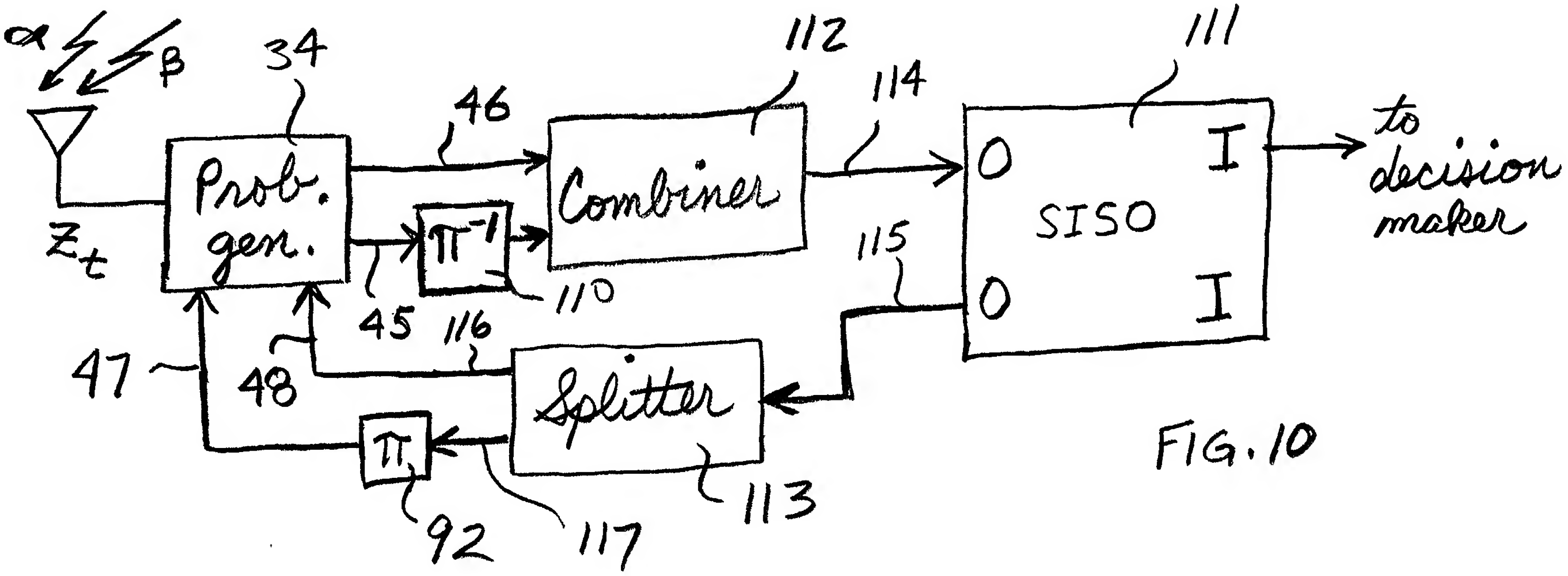

α
β
Z_t
34
Prob. gen.
46
45
$π^{-1}$
110
112
Combiner
114
111
O
O
SISO
I
I
to decision maker
115
Splitter
113
116
48
47
π
92
117

FIG. 10

FIG. 11

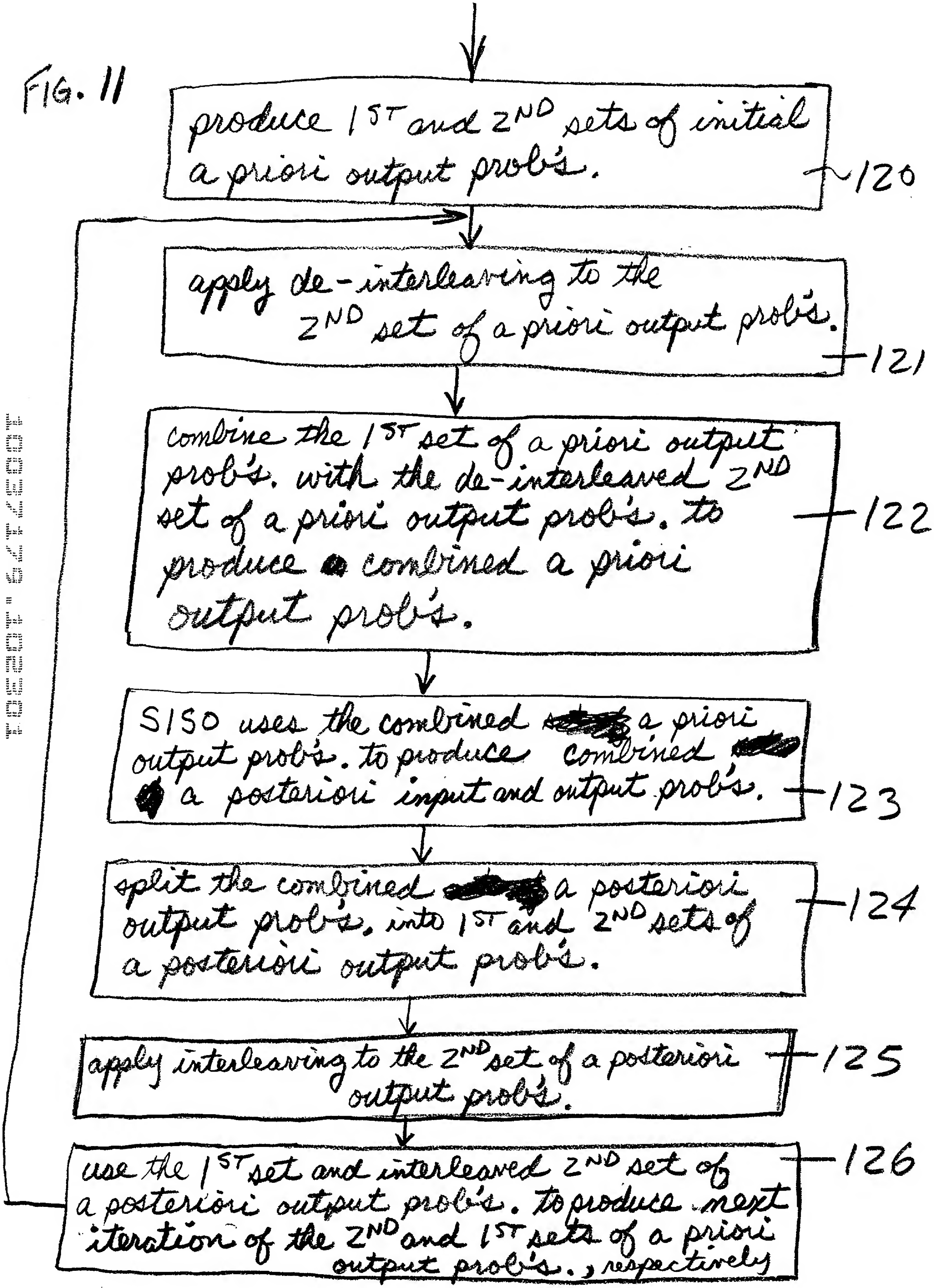
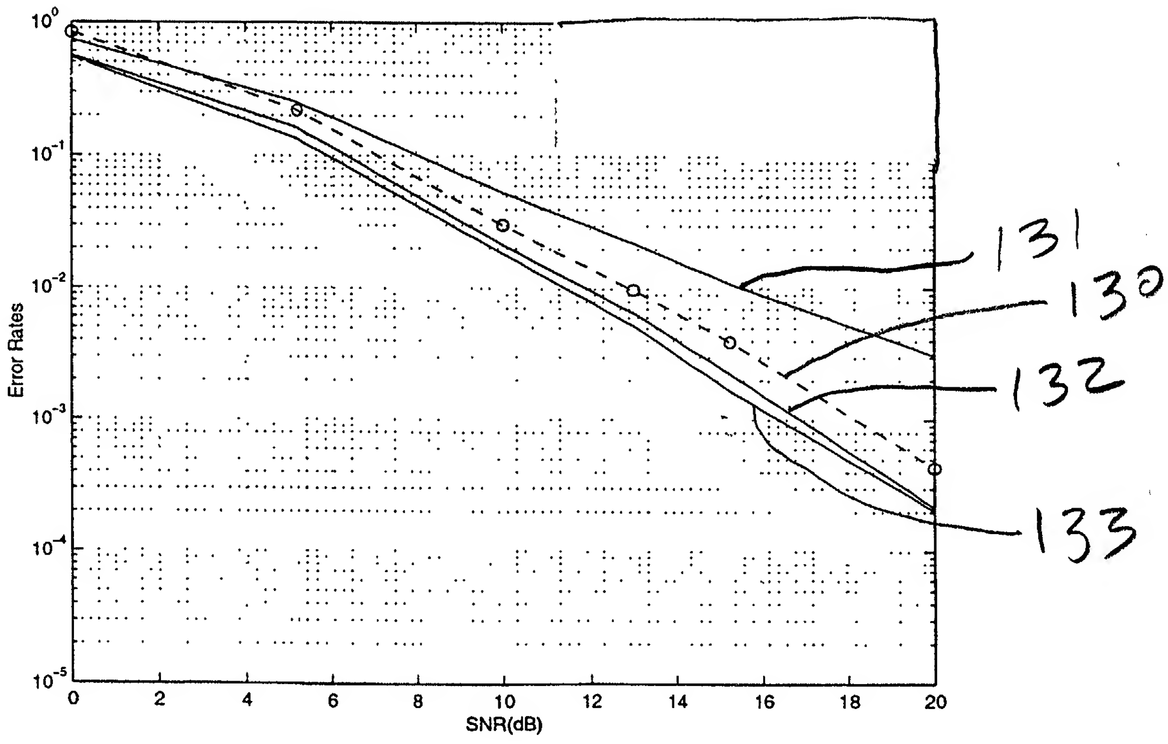

produce 1ST and 2ND sets of initial a priori output prob's.
120
apply de-interleaving to the 2ND set of a priori output prob's.
121
combine the 1ST set of a priori output prob's. with the de-interleaved 2ND set of a priori output prob's. to produce combined a priori output prob's.
122
SISO uses the combined a priori output prob's. to produce combined a posteriori input and output prob's.
123
split the combined a posteriori output prob's. into 1ST and 2ND sets of a posteriori output prob's.
124
apply interleaving to the 2ND set of a posteriori output prob's.
125
use the 1ST set and interleaved 2ND set of a posteriori output prob's. to produce next iteration of the 2ND and 1ST sets of a priori output prob's., respectively
126

FIG. 12


10^0
10^-1
10^-2
10^-3
10^-4
10^-5
Error Rates
0
2
4
6
8
10
12
14
16
18
20
SNR(dB)
131
130
132
133